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COLLECTING IN THE SIERRAS OF S. CALIFORNIA.

By H. C. FALL, Pomona, Cala.

The chief glory of Southern California is its climate; but, unlike the proverbial lion, the Summer temperature is sometimes more pronounced than it is painted—by the real-estate agents. When the mercury has frisked about for several weeks between 90° and 115°, the average man begins to feel the need of a readjustment of surroundings, and circumstances permitting, hies himself to the coast or to the mountains.

My friend, Mr. F. D. Twogood, of Riverside, and myself considered the above sufficient excuse for contracting with the stage driver to set us down on the top of the San Bernardino Mountains one morning in early July.

Both Mr. Twogood and myself have a weakness for entomology, he being partial to the Lepidoptera, while I lean rather toward the Coleoptera. In the following remarks I shall confine myself to noticing a few of the beetles taken during a month's stay on the mountains.

We camped in a little valley at about 5000 feet elevation, through which an ever lessening stream fringed with alders and willows flowed toward the Mojave Desert. The higher ground was rather sparsely wooded with pine, fir, cedar and oak, the conifers predominating. The little variety of vegitation indicated

a limited insect fauna, which proved to be the case. About one hundred species of Lepidoptera and four hundred of Coleoptera were the result of our raid, and these were not obtained without labor.

Our headquarters was located near a saw-mill, with two objects in view—the greater facility of obtaining supplies, and the prospect of securing many species of beetles whose pleasure it is to complete the work of destruction once begun by the lumbermen. With the wastefulness characteristic of those who gather from an apparently inexhaustible supply, the upper, or even the whole trunks of hundreds of giant pines were left lying on the ground, a prey to the insects and the elements. Under the loosening bark of one of these fallen monarchs I began my search. The first thing bottled was *Cossonus piniphilus;* these were always to be found, and with them in greater or less numbers occurred *Tachys nanus*, *Hister punctiger*, *Plegaderus nitidus*, *Lasconotus pusillus* and *Hypophlœus substriatus.* Other occasional finds under bark were *Rhyssodes hamatus*, *Alindria cylindrica* (very small), *Bius estriatus*, *Uloma longula* and *Metaclisa marginalis.* Buprestidæ were here much more numerous than in the valleys below. *Chrysobothris cuprascens* (hitherto reported from Colorado and New Mexico) was beaten in numbers from pines, and with them a few *C. femorata* and *C. californica.* The latter and also the brilliant *Melanophila gentilis* were taken dead from their burrows in dead pine twigs. *Melanophila intrusa* and *Chrysophana placida* were also beaten from pines. Specimens of *Buprestis maculiventris* and *B. læviventris* were taken flying near the summit. I can perceive no differences other than color between these two forms, and their manner of occurrence indicates specific identity. *Buprestis fasciata* turned up in sweeping the low herbage beside the brook, and *Dicerca hornii* was dug from dead alder stumps. On willows occurred *Agrilus politus* and *A. niveiventris;* the latter was the more abundant, and several trees were observed which had been seriously injured by its attacks. The flowers of a large primrose yielded many *Anthaxia æneogaster* and *Acmæodera connexa*, and promiscuous sweeping or beating gave one specimen of *Agrilus angelicus*, also several *Anthaxia deleta* of both sexes, the male bright green and the female olivaceous.

The piles of lumber near the saw-mill prompted frequent visits,

especially during twilight, when many things were on the wing. Of these the largest game was *Ergates spiculatus*, often seen flying slowly about the board piles and easily taken. The large burrows in pine stumps bear witness to the larval habits of this species. Under like circumstances were taken *Pactopus hornii*, *Carebora longula*, *Lasconotus servus*, *Ernobius* sp., *Hylastes macer* and *H. longus*. Our camp fire attracted numerous specimens of *Anelastes druryi*, and occasionally a *Polyphylla crinita;* I have never seen this species in the low country, its place there being taken by *P. 10-lineata*, which is not rare at electric lights.

Returning to camp one evening about sundown, I stopped to examine a small alder which had been felled across the stream. I had gathered a dozen or two of *Pityophthorus pubipennis*, which had emerged from their burrows and were taking an evening promenade, when, from the hole of one of the bark borers a strange head appeared; it belonged to that curious Cucujide, *Narthecius grandiceps*, and diligent search resulted in the finding of about a dozen of this very rare beetle. I know not what may be the habits of this insect, but the circumstances strongly suggest that it may be parasitic on the bark borer above mentioned. On this same alder I found two or three *Lasconotus linearis*, and from a freshly-cut tree close by a little colony of *Rhyncholus spretus*. Beneath a log partially imbedded in turf by the side of the stream I discovered the headquarters of *Hippodamia convergens* for this region; here, crowded together in places several deep, were not less than ten thousand individuals; what can be the signification of such a gathering?

Space will not permit a detailed allusion to even half of the species collected, nor is a complete list now possible, owing to the difficulty of identification; many, indeed, being undescribed.

That this article may be of some value as indicating geographical distribution, I append as complete a list as possible of the species not mentioned above:

Cicindela 12-guttata *Dej.*
Cychrus punctatus *Lec.*
Notiophilus semiopacus *Esch.*
Dyschirius gibbipennis *Lec.*
Schizogenius depressus *Lec.*
Bembidium erasum *Lec.*
" longulus *Lec.*
" semistriatus *Hald.*
Bembidium iridescens *Lec.*
Tachys anthrax *Lec.*
" audax *Lec.*
Pterostichus ater *Dej.*
" castanipes *Men.*
" occidentalis *Dej.*
Amara scitula *Zimm.*
" remotestriata *Dej.*

Platynus funebris *Lec.*
" fossiger *Dej.*
Lebia viridis *Say.*
Stenolophus anceps *Lec.*
Anisodactylus piceus *Men.*
" consobrinus *Lec.*
Bidessus pictodes *Sharp.*
" affinis *Say.*
Deronectes striatellus *Lec.*
Hydroporus vilis *Lec.*
Ilybiosoma regularis *Lec.*
Agabinus glabrellus *Mots.*
Agabus lugens *Lec.*
" lecontei *Cr.*
Gyrinus plicifer *Lec.*
Ochthebius puncticollis *Lec.*
Hydræna pennsylvanica *Kies.*
Tropisternus californicus *Lec.*
Hydrocharis glaucus *Lec.*
Chætarthria nigrella *Lec.*
Limnebius piceus *Horn.*
Cymbiodyta dorsalis *Mots.*
Laccobius ellipticus *Lec.*
Creniphilus rufiventris *Horn.*
Cercyon lugubris *Payk.*
Ptomaphagus consobrinus *Lec.*
Quedius explanatus *Lec.*
" capucinus *Grav.*
" limbifer *Horn.*
Philonthus sordidus *Grav.*
" nigritulus *Grav.*
Stenus costalis *Cas.*
" terricola *Cas.*
" californicus *Cas.*
Cryptobium californicum *Lec.*
Lathrobium jacobinum *Lec.*
Scopæus punctatus *Cas.*
" truncaticeps *Cas.*
Caloderma angulatum *Cas.*
" rasile *Cas.*
Tachinus debilis *Horn.*
Bledius ruficornis Lec.
Trogophlœus diffusus *Cas.*
Phalacrus penicellatus *Say.*
Megilla vittigera *Mann.*
Harmonia picta *Rand.*
Coccinella sanguinea *Linn.*
Mysia hornii *Cr.*
Exochomus marginipennis *Lec.*
Scymnus coniferarum *Cr.*
" pacificus *Cr.*
Aphorista morosa *Lec.*
Synchita variegata *Lec.*
Aulonium longum *Lec.*
Cerylon castaneum *Say.*
Pediacus depressus *Hbst.*
Brontes dubius *Fab.*
Mycetophagus californicus *Horn.*
Paromalus tejonicus *Horn.*
Sabrinus lubricus *Lec.*
Epuræa immunda *Sturm.*
Nitidula ziczac *Say.*
Omosita discoidea *Fab.*
Thalycra concolor *Lec.*
Trogosita virescens *Fab.*
Tenebrioides sinuata *Lec.*
Peltis pippingskoeldi *Mann.*
Hesperobænus abbreviatus *Mots.*
Limnebius punctatus *Lec.*
" nebulosus *Lec.*
" californicus *Lec.*
" tenuicornis *Cas.*
Dryops suturalis *Lec.*
Cyphon concinnus *Lec.*
Horistonotus sufflatus *Lec.*
Elater carbonicolor *Esch.?*
Megapenthes aterrimus *Horn.*
" stigmosus *Lec.*
Athous excavatus *Mots.*
" limbatus *Lec.*
Eros lætus *Mots.*
Podabrus comes *Lec.*
Malthodes fusculus *Lec.*
Dasytes pusillus *Lec.*
" hudsonicus *Lec.*
Cymatodera puncticollis *Bland.*
Clerus sphegeus *Fab.*
Hydnocera scabra *Lec.*
Cregya fasciata *Lec.*
Necrobia rufipes *Fab.*
Ptinus bimaculatus *Mels.*
Hadrobregmus gibbicollis *Lec.*

Ptilinus basalis *Lec.*
Atænius abditus *Hald.*
Amphicoma canina *Lec.*
Dichelonycha crotchii *Horn.*
Spondylis upiformis *Mann.*
Prionus californicus *Mots.*
Callidium hirtellum *Lec.*
Eucrossus villicornis *Lec.*
Necydalis cavipennis *Lec.*
Leptura crassicornis *Lec.*
Acanthocinus obliquus *Lec.*
Saxinis speculifera *Horn.*
Cryptocephalus sanguinicollis *Suffr.*
Glyptoscelis illustris *Cr.*
Colaspidea cuprascens *Lec.*
" smaragdulus *Lec.*
Chrysochrus cobaltinus *Lec.*
Plagiodera prasinella *Lec.*
Phyllobrotica viridipennis *Lec.*
Luperodes varipes *Lec.*
Haltica bimarginata *Say.*
Crepidodera helixines *Linn.*
Epitrix subcrinita *Lec.*
Glyptina atriventris *Horn.*
Phyllotreta albionica *Lec.*
Chætocnema opulenta *Horn.*
Microrhopala melsheimeri *Cr.*
Odontota californica *Horn.*
Zabrotes obliteratus *Horn.*
Asida obsoleta *Lec.*
Iphthimus serratus *Mann.*
Cœlocnemis dilaticollis *Mann.*
Tenebrio tenebrioides *Beauv.*
Plytydema oregonense *Lec.*
Helops edwardsii *Horn.*
Cistela variabilis *Horn.*
Pentaria nubila *Lec.*
Anaspis collaris *Lec.*
Notoxus calcaratus *Horn.*
Rhipiphorus flavipennis *Lec.*
Rhynchites bicolor *Fab.*
" glastinus *Lec.*
Thricolepis inornata *Horn.*
Scythropus californicus *Horn.*
Apion proclive *Lec.*
Smicronyx imbricatus *Cas.*
Anthonomus sycophanta *Walsh.*
" inermis *Boh.*
" ornatula *Dietz?*
Magdalis cuneiformis *Horn.*
" lecontei *Horn.*
Orchestes parvicollis *Horn.*
Piazurus californicus *Lec.*
Copturus longulus *Lec.*
Ceutorhynchus obliquus *Lec.*
Balaninus uniformis *Lec.?*
Rhyncholus oregonensis *Horn.*
Pityophthorus retusus *Lec.*
Tomicus confusus *Lec.*
Scolytus ventralis *Lec.?*
Phlœosinus punctatus *Lec.*
Dendroctonus
Hylurgops subcostulatus *Mann.*

———o———

Description of the Larva and Pupa of Papilio homerus Fab.

By CHARLES B. TAYLOR, F. E. S.

LARVA.—Length about two and one-quarter inches; general appearance incrassated, the body being thickest from the third to the fifth segments, from thence tapering gradually to the anal extremity, which is abruptly truncated. Head small, pale ochreous or brown, deflected, and, when the larva is at rest, almost completely obscured by a projection of the anterior margin of the first segment. Color protective, harmonizing closely with

the tint of the leaf of the food-plant. Upper surface a rich deep chrome-green, extending down to about the spiracular region, where it terminates with a more or less irregular or sinuous outline most pronounced towards the posterior segments, where the green is sharply divided from the color of the under surface by a narrow edging of white; first segment with a short transverse dorsal bar of pale dun or ochreous brown; a broad curved band of the same color, bearing a few lines and spots of black, runs in a posterior direction across the dorsal surface of the third segment and down to the sides of the fourth segment, where, curving slightly upwards, it ends in club-shaped dilations enclosing a simple ocellus, colored as follows: On a comma-shaped ground patch of black is drawn a rather broad ring of dun, bordered below with bluish gray, followed by a black iris, with a bluish white pupil. Across the posterior or margin of the fifth segment is drawn a most inconspicuous luniform stripe of white, having a raised appearance, as if laid on with several coats of body color, and which is in turn marked with little transverse bars of pale lavender, five in all; the horns of the crescent have this time a slightly anterior direction, and terminate at the sides, between the fourth and fifth segments, just at the junction of the green with the brown of the under surface. Anterior margin of the fifth segment immediately in front of the white stripe, finely irrorated with white; between the fifth and sixth segments is a broad transverse band of deep black, more or less completely hidden by the segmental fold, except when the larva is in motion; then it is very conspicuous. Ventral surface, including abdominal legs, dull dark brown; a broad band of this color, suffused with a lavender-gray tint, bearing a few scattered spots of blue-gray, and having a very irregular or jagged outline, is continued obliquely upwards in a posterior direction from the eighth segment, and meeting on the dorsal surface of the tenth segment descends again obliquely, narrowing rapidly, however, before joining the brown of the under surface, thus enclosing an irregular diamond-shaped patch of green. Segmental folds strongly marked on the ventral surface.

PUPA of usual shape, but not greatly angulated; color wholly dark wood-brown, with two pairs of white tubercles on the dorsal surface of the middle abdominal segments.

FOOD-PLANT.—A tree growing to a large size and of great

height, bearing subovate leaves with long stalks, deep glossy green. Local name, "Water Wood;" botanical name unknown. The larva was taken at the Fountain Road in the Bath district of the Parish of St. Thomas, in the East, on the 27th day of November, 1893, and developed a male *Homerus* on the 29th of December following.

NOTE.—The food-plant is probably *Chimarrhis cymosa* Jacq.—ED.

SOME ANTS FROM LAS CRUCES, NEW MEX.

By C. H. TYLER TOWNSEND.

The following ants were collected at Las Cruces, New Mex., from 1891 to 1893. The determinations were all made at Washington by Dr. Riley. They will be of interest, as very little is known of the ants of this region.

Camponotus castaneus Latr. ♀.—This species, which is 10–11 mm. long, is common in houses. It is wholly rufous, with blackish abdomen, and head rather darker rufous than the rest.

Cremastogaster sp. ♀.—A small blackish ant, about 2⅔ mm. long. Thorax, legs and antennæ with a rufous tinge.

Cremastogaster lineolata Say ♀.—This is a small species, with rufous head, antennæ, thorax and legs, and black abdomen. Length 4–5 mm. A colony of workers and white larvæ found in galleries in dead stick of cottonwood, Feb. 20, 1893.

Dorymyrmex sp. ♀.—A small ant. Head, thorax and antennæ rufous, abdomen and legs black.

Formica sp. ♂ (?).—A moderately small black ant. Legs black, wings clear.

Formica sp. ♁.—A winged specimen, black with yellowish legs; wings slightly smoky.

Formica integra Nyl. ♀.—Workers.

Monomorium minutum Mayr. ♀.—A very small black ant.

Myrmecina sp. ♂.—A slender yellowish ant.

Pogonomyrmex occidentalis Cr. ♀ ♂.—Several workers and males.

Tapinoma sessile Say ♀.—A small black ant.

Tetramorium sp. (?) ♀.—This is a small yellowish ant. The workers are about 2½ mm. long and slender.

Two of the above species, *Cremastogaster lineolata* and *Tapinoma sessile*, are found in Baja, Cala., as shown by a small collection made there by the California Academy of Sciences, and sent to Mr. Theo. Pergande for determination. Mr. Pergande's paper appears in the Proceedings, series 2, vol. iv, pp. 26-36.

ELEMENTARY ENTOMOLOGY.

MICROLEPIDOPTERA.—Part I.

By Prof. C. H. FERNALD, Amherst, Mass.

The group of insects known as microlepidoptera may be conveniently divided into the following families, viz.: Pyralidæ, Pterophoridæ, Tortricidæ and Tineidæ. Some authors regard them as superfamilies under the names Pyralidina, Tortricina, Tineina and Pterophorina, in the order given. Others consider the last-named group as a family under the Pyralidina, but it seems more natural to consider them a distinct family and place them immediately after the Pyralidæ, to which they seem most nearly allied.

The family Pyralidæ includes medium- and small-sized insects ranging in expanse of wings from 10 to 60 mm. Their fore wings are entire and more or less triangular in form, while the hind wings are sometimes wider, and, when at rest, are more or less folded and covered by the fore wings, which are placed horizontally or sloping, with the hinder borders touching, along the line of the body. Some of the species (Crambids and Phycids) have narrower fore wings and roll them around the body when at rest.

The maxillary palpi and tongue are usually well developed, though the latter is abortive in some species. The ocelli are usually present.

The fore wings have twelve, eleven, ten, nine, or even in some species only eight veins. The dorsal vein (1b) is generally accompanied by a short internal vein (1a), which sometimes runs to the hinder margin, sometimes it is lost before reaching the margin, and sometimes it curves up and joins the dorsal vein. This internal vein has very generally been overlooked, owing, perhaps, to the fact that many persons mount their prepared or bleached wings in Canada balsam, which renders many of the finer veins entirely invisible. Wings designed for microscopic study should be mounted in glycerine (see Packard's "Entomology for Beginners," p. 269). Vein 5 arises much nearer to 4 than to 6, 8 and 9 are stalked.

The hind wings have the frenulum developed, and normally contain eight veins, but the number is sometimes reduced to seven, and in a few species to six. There are three internal veins

distinguished as 1a, 1b, and 1c, counting outwardly. Vein 1b is rarely if ever forked at the base, as in the Tortricids and many of the Tineids. Vein 5 is much nearer 4 at its origin, than to 6. Veins 6 and 7 are stalked, or, in a few species, they are separate. The costal vein arises at the base of the wing near the subcostal and runs near and parallel with it to the end of the cell, beyond which it is either joined with vein 8 for a short distance, or else runs so close to it as to appear to unite with it. This is an important characteristic of this family.

The subfamilies may be separated by the following table:

1.	Median vein of hind wings not hairy above	2.
	Median vein of hind wings hairy above	3.
2.	Fore wings with vein 7 separate from 8 and 9	**Pyraustinæ.**
	Fore wings with vein 7 arising from the stem of 8 and 9	**Pyralinæ.**
3.	Fore wings with vein 7 present	4.
	Fore wings with vein 7 absent	**Phycitinæ.**
4.	Maxillary palpi triangular	**Crambinæ.**
	Maxillary palpi not triangular	**Galleriinæ.**

The family Pterophoridæ (feather-wings or plume-moths) include small moths ranging from 10 to 36 mm. in expanse of wings. They have slender bodies; long, slim legs; long, narrow and fissured wings which they hold nearly horizontally, and at right angles with the body, but the feathers of the hind wings are folded over each other and drawn forward under the fore wings.

The genus *Agdistis*, of Europe, has entire wings, but the fissure is indicated. The genera *Scoptonoma* and *Stenoptycha*, established by Zeller and placed among the Pterophorids, have been transferred to the Pyralids, the former being synonymous with Guenée's genus *Lineodes*. The fringes are quite long, and arranged on both sides of the divisions of the wings, giving them their strong resemblance to the feathers of a bird, and thus making more complete organs of flight.

This family comprises two well-defined subfamilies: Pterophorinæ and Orneodinæ.

The Pterophorinæ have a fissure in the fore wings extending in from the middle of the outer margin, between veins 4 and 7, nearly one-fourth of the length of the wing. The hind wing is separated into three divisions by two fissures extending in from the outer margin, the first between veins 4 and 8, nearly to the middle of the wing, the second between 1c and 2, nearly three-

fourths of the distance to the base of the wing. These divisions are called feathers; the anterior being called the first feather, the middle one the second feather, and the posterior one the third feather.

The Orneodinæ may be easily distinguished by having the fore and hind wings each six-cleft. Only one species has as yet been found in this country, and that is the well-known European *Orneodes hexadactyla* L., the larva of which feeds in the flowers of honey-suckle (*Lonicera*), spends the pupal state under ground and hibernates during the Winter in the imago state.

The usual time of flight of the feather-wings is on mild, calm evenings, when they are frequently attracted to light and rarely to sugar. They may, however, be easily "flushed" in the daytime from the low shrubbery on which they usually rest, when they will fly a short distance and alight again. These insects are not generally very abundant, yet where one is "flushed" others can generally be found, often in considerable numbers.

A few of the species are of economic importance, as they feed on useful plants and sometimes do much injury.

The family Tortricidæ, or leaf-rollers, include a large group of rather stout-bodied insects, below the medium size, ranging in expanse of wings from 7 to 43 mm. They are distributed very widely over the globe, but do not appear to be so abundant in tropical America as in some other regions.

The head is covered with coarse, erect scales, which give it a rough appearance. The tongue is rather short, and in a few species it is obsolete. The ocelli are generally present. They have no maxillary palpi, but the labial palpi are rather stout and blunt. The antennæ are from half to three-fourths as long as the costa, simple or pubescent, and in a very few species pectinated. The legs are of moderate size and length, and often present secondary sexual characters in the males. Such characters also occur on other parts of many of these insects, as on the fore and hind wings, antennæ, etc.

The fore wings are moderately elongated, triangular, or somewhat rectangular, with short fringes. The surface of the wing is generally smooth, though in some species there are small tufts of elevated scales arising at definite places. The pattern of coloration is quite uniform in the subfamilies, but in some species

the fore wings are of plain colors and entirely without markings. The color and markings appear to be of service in concealing them from their enemies. Very interesting dimorphic forms occur in some species, as *Teras minuta* Robs. When these insects are at rest the fore wings are either spread out flat, or they are inclined, roof-shaped, or else they are more or less rolled around the body. The fore wings have twelve veins, except in a few species, which have but eleven. Vein 1 is forked at the base, and all are separate at the origin, except 7 and 8, which are united at the base for a greater or less extent in some species.

The hind wings are more or less trapezoidal in form, and without markings, except in a few Australian species. They have eight veins, except in a few species, where 3 and 4 coalesce and form one. There are three internal veins indicated as 1a, 1b and 1c. These arise separately from the base of the wing behind the median vein, and 1b is forked at the base. The costal vein arises free from the base of the wing and very near to the base of the subcostal which is so fine near the base as often to appear to be merged into the costal. This position of the costal vein of the hind wing and the fork at the base of 1b, readily separates the Tortricids from the Pyralids.

The subfamilies may be separated by the following table :

1. Median vein of hind wings hairy above . . . . . **Grapholithinæ.**
   Median vein of hind wings not hairy above . . . . . 2.
2. Vein 2 of the fore wings from near middle of median vein . **Tortricinæ.**
   Vein 2 of the fore wings from outer third of median vein . **Conchylinæ.**

A large majority of the Tortricids fold or roll together the leaves of the plants upon which they feed. Some feed in fruit and seeds; others are borers in stems, and a few are supposed to be gall makers, while one has been shown to be carnivorous.

There is probably no other family of insects in which a larger proportion of the species is injurious to plants that are of value to man.

The usual time of flight is from 4 to 7 or 8 in the evening, but they may be "flushed" or beaten from the bushes at other times of the day. A very few come to light or sugar, but not many can be captured by these methods.

NOTE ON SCOLOPOSTETHUS.

By E. P. Van Duzee.

In the November, 1893, number of the "Revue d'Entomologie," Dr. C. Horvath, in an article on "Les Scolopostethus Americains," questions the occurrence of *S. affinis* Schill. in this country. Three American species of this genus are known to him, two of which he describes as new, the third he identifies with *S. thomsoni* Reut., of Europe.

This note of Dr. Horvath's has led me to go over my material in this genus with the following results: All my specimens evidently belong to one species. They want the mesosternal tubercles, but possess the long erect bristles on the vertex near the ocelli. The lower edge of the anterior femora is minutely denticulate beyond the prominent tooth and more coarsely on the basal one-half. In some examples the second joint of the antennæ is entirely pale, in others the apex is piceous, while one specimen has this joint and the base of the third pale. On the claws the two outer rows of punctures are parallel and the apex of the corium is broadly piceous. In some the membrane is short, in others fully developed, but in all there is a large whitish spot exteriorly next the tip of the corium more conspicuous in the macropterous examples.

Comparing these specimens with Dr. Horvath's synopsis in the "Revue" for 1892, I can discover no characters sufficient to distinguish them from the European *S. thomsoni*. The name *S. affinis* Schill. I received from some of my correspondents about nine years ago when I first took up the study of the Hemiptera, and have never made a careful study of this species to verify the determination.

ARKANSAS LEPIDOPTERA.

By Rev. John Davis, Little Rock, Ark.

A somewhat diligent canvass of the suburbs of Little Rock during the past season leaves the conviction that, contrary to some current beliefs, there are few diurnals here new to the science. Throughout the early months it was very rainy and cold, so that it is probable some of the less frequent species were overlooked. But those who are expecting any numerous "finds" from this

State, aside from the Heterocera, are likely to wait apace. Among the moths I believe some new and beautiful varieties are still awaiting description. Arkansas offers a most inviting field for the lepidopterist. The common moths that are about our houses are emerging already these early days in January. Not many weeks hence we will see *archippus* and *P. rapæ* lazily flitting about over gardens and hedges. The earliest *D. archippus* seen last season was on March 12, while on the 17th following a school girl picked up by the road-side a superb specimen of *Deilephila lineata*. It would be hazardous to say how many broods of *P. rapæ* emerge between March and December, and the same applies to not a few other species. I observed *P. rapæ* pairing as late as December 1st. In the midst of so much that invites the entomologist in Arkansas, it is almost disheartening to see the few engaged here in the study. Aside from the force at the Experiment Station at Fayetteville, I do not know of a single worker or collector in the State. In the face of so little local study and investigation it may be rash to say there are no new diurnals here. The appended list is, therefore, only a partial one, the captures being chiefly on the streets and gardens of Little Rock, or in the immediate environs :

P. turnus.
P. cresphontes.
P. rapæ.
P. protodice.
C. eurytheme.
C. philodice.
G. interrogationis.
G. comma.
G. progne.
L. ursula.
D. portlandia.
P. troglodyta.
D. archippus.
J. coenia.
Pamphila accius.
Pamphila phylaeus.
Terias lisa.
" *nicippe.*
Nathalis iole.
Phyciodes phaon.
Thecla poeas.
Lycaena alce.
" *comyntas.*
Euptoeita claudia.
Pyrameis huntera.
Neonympha sosybius.
Apatura clyton.
Apatura var. proserpina.
Pyrgus syrichtus.
Pholisora catullus.

The last fourteen were identified through the courtesy of Dr. Skinner, editor of ENTOMOLOGICAL NEWS.

TACHYRIS ILAIRE n. var. NEUMOEGENII.

By Dr. HENRY SKINNER.

(See plate iv.)

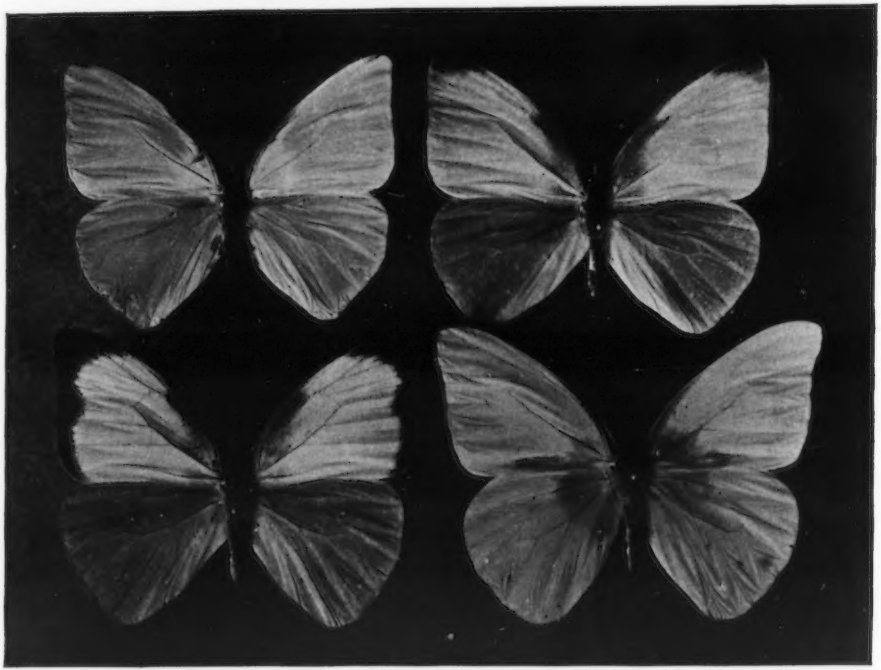
The species *T. ilaire* is one of our larger butterflies, and is found in Florida, Texas and Arizona. It is quite a variable species, and our Florida specimens differ materially from those found in the West Indies, South and Central America. My attention was called to this difference by Mr. B. Neumoegen whose collection contains a fine series of specimens from the Indian River, Florida, and those of other localities. Mr. Neumoegen has sent me four females for study and inspection, and these I have before me. Three are from the Indian River, Fla., and one is from Arizona. In the Indian River specimens, the inferiors above are lemon-yellow and the superiors white, with the tips and basal areas grayish black. One specimen has a border of this darker color on the superiors. The Arizona specimen has quite a wide dark border to all the wings. The wings beneath are white with the bases of the superiors rich orange. The males are entirely white, and those from the Indian River, that I have, show no dark tip to the superiors, while the South American and Central American specimens have a marked black tip. The males beneath are white and only show traces of the orange. The Florida males are more of a cream color, while the South American males are more of a dead white. The males and females figured are from the Indian River, Fla., and for this form I propose the varietal name *neumoegenii*. There are four Cuban specimens in the coll. of the American Entomological Society. The females of these have a black border to all four wings; that of the inferiors not being nearly so heavy as on the superior wings. Dr. Staudinger in his "Exotische Schmetterlinge," figures this species, and the ♂ has the black tip on the apices of the superiors and the ♀ has a wide black border on both the superior and inferior wings. This I take to be the typical form.

———o———

THE BOLD ROBBER FLY.

By S. F. AARON.

Among insects of the order called Diptera, the two-winged flies, to which the mosquito, gnat, horse-fly, common house-fly, etc., belong, is particularly noted for its extremes in insect character-



See page 110.

TACHYRIS ILAIRE.

Indian River, Fla.

istics. The order possesses the fastest flyers, the biggest eaters, the strongest jumpers (the flea), the most gluttonous blood-suckers and the most rapacious species of the class insecta. Of the rapacious Diptera, the typical example is the robber fly, known to naturalists by the scientific term *Asilus*, of which there are many different species, large and small. Our most common species around Philadelphia is about one inch long, light and dark brown, with silky, gray tufts of hair about its body and a bluish spot at the last segment of its slender abdomen.

The robber fly is the peregrin falcon of insects, and hawk fly would be a better name for it. It will seize almost any insect as its prey, often a grasshopper so large that it cannot fly with it or a stout moth, sometimes many times larger than itself, a bug, beetle, fly, or even a bee, wasp, or small hornet. The *Asilus* seems rather inclined toward the stinging Hymenoptera (the bee and wasp order), and there is a species found in the Southern States that makes the annulated paper nest wasp *Polistes* almost exclusively his prey. The robber fly has three principal characteristics that serve his hawk-like habits: long, but strong legs, a long and exceedingly sharp, sword-like proboscis, and muscular wings that enable him to overtake almost every other insect in the air or to pounce upon his victim resting on leaf or flower. If he seizes a bee or wasp his legs are long enough to hold his prey so that he cannot be reached by the sting. His proboscis, held when inactive in a sort of double sheath, the point just protruding, is capable of great extension, and is also a haustelum; with it the *Asilus* sucks the juices of his victims. No insect will live any length of time with a considerable part of its insides pumped out. The robber fly always pounces upon the back of a wasp or other insect; sometimes when its prey is apparently unsuspecting. The struggle is short, sharp and decisive. An *Asilus* has been seen to seize a grasshopper, and the powerful Acridian did everything, for a few moments, to dislodge its captor, the first few springs rolling them both over in the grass, the robber keeping his hold and remaining on the grasshopper's back, while the latter tried to scrape the fly off with his long hind legs. In a moment the sword proboscis was thrust away into the back of the 'hopper's head, and with a few convulsive kicks the Acridian expired, literally bereft of his brains, or what part of them the fly could make a meal of.

On another occasion the writer happened to spy the *Asilus* just finishing a wasp, and though its body was somewhat larger than the robber the latter flew off with it almost as swiftly as if not at all burdened. One frequently comes across our common *Asilus* struggling in the grass with a moth, sometimes twice the size of the fly, and it is not uncommon to find him with a bumble-bee, which he will carry from grass-stalk to grass-stalk when disturbed. A light brown *Asilus*, rather rare about Philadelphia, occasionally seizes upon the common sulphur-yellow field butterfly, *Colias philodice*.

The keen sword-like proboscis of the robber fly is easily thrust through the hard coat-of-mail of a wasp, hornet, certain beetles and all other softer insects, and will stop their struggles in a few seconds. But the robber occasionally attacks insects that possess such invulnerable outer crusts that his sharp bill cannot pierce it. A friend tells of an instance in which he saw a robber fly attack a gold bee, *Chrysis*, a small metallic-colored insect that is so hard that one cannot crush it between the finger and thumb. The fly held the bee easily enough, despite its struggles, but could not thrust his proboscis into the head or thorax of the *Chrysis*, and after repeated trials gave up the job and flew away, and the bee, not hurt at all, flew away also.

The writer once saw a robber fly drop a divaricated *Buprestis* (the pretty beetle, golden and green, that boys call "coat-tails") and the beetle ran away unhurt. The robber had evidently been trying to thrust its bill through its hard exterior and had failed. There are several beetles that will thus foil the *Asilus*.

The *Asilus* also sometimes more than meets his match. I once witnessed an affair between a large black robber fly (found only in the South and when on the wing, in general appearance, like a dragon fly) and the famous sand hornet, the beautiful *Stigus*. The hornet is another rapacious insect, but uses the paralyzed bodies of her victims only to lay her eggs in, then burying them, that the coming generation of hornets, when hatched, will have food and shelter with which and wherein to carry on their transformations into the full-grown insect. The victims of the *Stigus* are fat grasshoppers or spiders and the dog-day locust, *Cicada pruinosa*, a first cousin to the seventeen-year locust of fame. The struggle between the hornet and her victim is over more quickly than that between the *Asilus* and his prey. The *Cicada* is very swift of wing, and I do not believe the robber fly could catch it, but the hornet often does catch and kill it in the air.

VISITORS FROM SOUTH AMERICA.

The Many-footed Hosts that are brought here as Stowaways.

Throughout the year, but particularly at this season, when the city is dependent upon the tropics for its fruit supply, almost every steamer entering New York brings a number of many-footed stowaways. The steamers which bring the most of these stowaways are those that come from the West Indies and Central America, loaded with bananas, and a naturalist will always be rewarded by a visit to any of the piers where these vessels unload. As bunch after bunch of bananas is handed out from the hold to be packed away in large open vans, a lizard often drops out and can be easily captured. These are of every color, many of them beautiful, and all perfectly harmless. Sometimes a small tropical moth flutters out, and a careful observer will find many sorts of ants, from great black fellows that have a savage bite to the tiniest of the species.

Very unwelcome visitors are centipedes and scorpions, that frequently find shelter in the large green bunches, and many of the men who handle the fruit have been stung by those noxious insects. The sting of the scorpion seems instantly to paralize the limb struck, and causes most acute pain and much swelling. The centipede, whose every leg is armed with a sting that leaves its poison behind as it hurries over the human skin, leaves a trail of pain behind it which is quite acute as that caused by the scorpion. The best remedy for these stings is strong spirits of ammonia, which should be at once rubbed into the skin vigorously.

Now and then a small snake makes his appearance from among the fruit, and always causes a panic among the people near by. These are always of the tree variety, and are generally harmless, but they receive no favor and are soon battered into a jelly. Spiders are among the most common of these tropical immigrants, and among these the hairy-legged tarantula is, very rightly, the most dreaded. One that was captured recently covered nearly as much ground as a man's hand. The ugly customer lived for several weeks in confinement. It was fed on raw meat; but was particularly fond of cockroaches. The other spiders that come on the fruit ships are harmless, and almost all of them are beautifully marked, and are prized by naturalists.

Various species of beetle can often be found on these ships, from the giant elephant to some not larger than a pin's head. Among this class of insects the naturalist will occasionally find a rare species that will repay him for many hours spent on the windy piers. Not uncommon visitors are the frogs, little green and brown fellows, that could give Mark Twain's jumping frogs points and then beat him out of sight. So nimble are these little batrachians that it is hard work to catch them. If caught they should be let loose in a greenhouse, where they do wonderfully well and do much good in killing parasites. For its size the tree frog can croak louder than any other member of his loud-voiced family.

Timber-laden vessels from the tropics are always worth a visit. Scorpions and centipedes are common upon them, and generally the visitor is rewarded by finding many beetles, and sometimes the chrysalis of some tropical butterfly or moth may be met with, which, if kept in a warm place, will hatch and give the collector a perfect specimen of an insect he little dreamed of ever possessing. Among the wood, too, may often be found the nests of the mason wasp. If these are broken open and the grub is not full grown, one is sure to find several kinds of small spiders that the mother wasp had stung into insensibility and placed in the cell for food for her progeny.—*Newspaper.*

AN INSECT MINE.—Three years ago, in April, as I was collecting insects on the shores of Lake Michigan, on the coast from South Chicago, Ill., to Whiting, Ind., I found, to my surprise, wintering in and on the sand, Coleoptera of every kind. I found principally good and complete specimens of *Doryphora 10-lineata*, *Catalpa lanigera* by the hundred from one-half inch to one and one-half inches deep in the sand, while under the small pieces of wood, principally bark and rubbish that had been washed to the shore, could be seen a great many specimens of *Galerita janus* and *Sphenophorus* of different varieties, even this large light gray specimen, *C. scrutator* of a darker and dull green color than ours of Missouri, some *C. calidum* and *Geopinus incrassatus*, while *Pterostichus* and *Platynus* of every kind, I gathered by the thousand. I have of late years visited the sand shores of the Mississippi, but never again have I seen such gregariousness in insects. Those interested in Entomology living on lake shores have a good chance if 1891 was not an exceptional year for Chicago suburbs.—EUGENE R. FISCHER.

ENTOMOLOGICAL NEWS.

Published monthly (except July and August), in charge of the joint publication committees of the Entomological Section of the Academy of Natural Sciences, of Philadelphia, and the American Entomological Society. It will contain not less than 300 pages per annum. It will maintain no free list whatever, but will leave no measure untried to make it a necessity to every student of insect life, so that its very moderate annual subscription may be considered well spent.

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PHILADELPHIA, PA., APRIL, 1894.

THE NEW ENTOMOLOGY.

The above is the title of the annual address delivered before the Entomological Society of Lancashire and Cheshire, England, Jan. 8, 1894, by W. E. Sharp, from which we quote: "Entomology is comparatively an old science, but it must be apparent that of recent years the study has assumed a wider horizon, and taken to itself new and perhaps even more fascinating methods." With all respect to the past masters in Entomology, how limited was their sense of domain they were investigating. Patient and reliable as were their researches, valuable as was the knowledge of Nature they acquired and bequeathed to us, they never seemed to trouble themselves about the meaning, the why of phenomena, the how; the methods of things were enough for them. The disciples of the past supposed that when every insect form in the world had been described and catalogued, and the whole of the order finally and unanimously arranged in methodical series of divisions then their purpose would be accomplished and their occupation gone. We, on the contrary, know that even with such perfected work our real labors would be but begun.

A COLLECTION NOTE.—On February 25th, three collectors near Newark took the following specimens around the base of trees. Any number of *Notiophilus sibiricus, Dyschyrius globulosus, Bembidium constrictum, B. 4-maculatum;* between fifty and sixty *Metabletus americanus,* also *Apenes sinuata, Platynus metallescens, Dromius piceus, Cryptarcha ampla, Pandeletejus hilaris, Quedius vernix,* besides a considerable number of Staphylinidæ, which have not yet been identified.—E. A. BISCHOFF.

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc. D., New Brunswick, N. J.

California Entomology.—The report of the work of the Agricultural Experiment Station of the University of California for the year 1891, '92 is at hand, and contains, among other things of interest, synopsis of the diseases of cultivated plants and one of the families of insects. Under the title, Diseases of Cultivated Plants, are included the effects of the injuries caused by insects, and it is attempted to give, in a diagnostic way, those characters which will enable the average "intelligent farmer" (a term, by-the-bye, to which I have heard objections) to recognize what it is that troubles him. Having determined from the first synopsis whether the trouble is disease or insect work, the second synopsis is intended to enable the individual to determine what insect or what sort of creature has caused the trouble. The make-up of the table is decidedly original, and in practice it may work well in some hands. The farmers in California, however, must be very much further advanced than most of those along the Atlantic coast if they find themselves able to make satisfactory determinations from the publication. This is not intended at all as adverse criticism upon the value of the synopsis, because this has undoubtedly been carefully thought out and put into as clear a language as possible. It is simply that the average farmer, intelligent or otherwise, would very much rather write to the Station and send specimens, throwing upon the entomologist the burden of telling him just what to do, than he would make use of such a paper as that given us by Mr. Woodworth. This is not really surprising, for what may seem very simple and clear to a trained mind, may be altogether beyond even a well-developed one not used to analytical methods.

Habits of the Cockroach.—Mr. Roy Hopping, Bloomfield, N. J., writes on this subject as follows: "Your note on the habits of cockroaches in the ENT. NEWS for March, 1894, recalls to me the way we got rid of that pest in our house. The family was still away at the seashore, and my father, returning before them, conceived the idea of disinfecting the house with a sulphur candle. If you have never seen this harmless toy I will say it is sulphur contained in a tin cup about half the size of a fruit-can and has four wicks. It was started at five o'clock in the afternoon and at ten my father, after opening the door, decided to take a walk, Returning at twelve he managed to get in after making several dives at the windows from the open door and throwing these open. By much ventilation he managed to make the upper stories habitable. It was known there were some roaches in the house and they had increased during the time the house was unoccupied. The sulphur drew them from their holes for air and has that advantage over poison. The next morning, armed with broom, shovel and barrel—but suffice it to say we haven't had any cockroaches since."

Report on the Insects of New York.—Dr. Lintner's 8th Report has just come to hand. It is for the year 1891, and therefore fully two years behind. There is no question as to the value of the Report, for it is up to Dr. Lintner's usual standard of thoroughness; but it is at least unfortunate that it is impossible to bring out the Report in time for use in the season following that in which the studies were made. This is one point in which most Experiment Stations have the advantage of State officers whose publications are confined to an Annual Report; for they can by means of Bulletins reach the farmers at the time at which information will be most useful to them. Considerable space is devoted in the Report to a history of the Pear Midge, and the suggestion is made that the larvæ be destroyed by killing the blossoms after the eggs have been deposited, by the use of the arsenites in sufficient strength, or drenching the ground beneath the trees after the larvæ have entered it, with the kerosene emulsion. The latter recommendation is hardly practical, and would be altogether too expensive. I do not think it would be possible to get the farmers to go into the business of manufacturing kerosene emulsions on any scale large enough to enable them to drench an orchard covering acres of ground. Lime or wood ashes are also recommended, but there is no actual experiment to support the recommendation. Blasting the blossoms would undoubtedly be effective could the pear growers be induced to adopt the remedy; but it is here that the difficulty will be found; for in my experience there is nothing in the world that the average farmer or fruit-grower hates worse than to do anything that will injure a possible fruit, even when it is demonstrated to him that there is not one chance in a thousand of his getting it.

Another series of articles of great interest is on the Fish-flies, *Chauliodes* and *Corydalis*, giving the life-history of the species and some interesting information concerning their habits. The Report contains altogether too many matters to be referred to at length; but on looking it over the entomologist finds that almost every subject has been treated in some way since the Report was written, and while Dr. Lintner has brought up the articles to date as far as possible, yet it is, in our hurry-scurry age, already a little behind the time, which, however, does not prevent it from being an extremly valuable one to his constituency.

Why Erebus enters Houses.—The query as to why *Erebus* enters houses, proposed by Prof. Westcott in the last number of the News, brings to mind a habit of these moths which I noticed while in the Bahama Islands last Summer. These islands have numerous large caves which are the retreat during daytime of hosts of *Erebus*, sharing the shelter from the tropical sun with the larged-eared bats of that region (*Macrotus waterhousii*). Occasionally the moths may be started from very thick foliage, but the caves appear to be the favorite hiding-places. It seems that the cave-frequenting habit might quite possibly account for the predilection the species of *Erebus* show for houses when they straggle in regions where their accustomed shelters are hard to find.—H. F. Wickham.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

Mr. E. B. POULTON has been elected to the Hope Professorship at Oxford, which was made vacant by the death of J. O. Westwood.

Prof. A. J. COOK, for many years professor of entomology in the Agricultural College of Michigan, has removed to Claremont, Cal., where he is professor of zoology in Pomona college.—"Insect Life."

DR. WESTCOTT writes us that he took one example of *Composia fidelissima* H. S., Jan. 2, 1894, at Jupiter, Fla. It was perfectly fresh and very sluggish in flight, probably not long from the pupa. Nothing else was on the wing, except some battered specimens of *Eudamus proteus* Linn. and a few Diptera.

AN IMPORTED BOSTRYCHUS.—In looking over the material of a fellow collector at Newark I found seven or eight specimens of a *Bostrychus* new to me. I asked where it was taken and was informed that it came from parties working in a licorice-factory and was found flying around the lights, the factory working night and day. In exploring the locality near the factory I was unable to find where they could come from, until I learned that some of the wood in use in the factory was imported from Spain and Turkey. Suspecting, therefore, an imported species I handed it to Prof. Smith, who informs me that, according to Dr. Horn, it is *B. capucinus*, a species not heretofore recorded as having been taken in North America. It is almost certain that the specimens were brought in the material imported for the use of the factory, and almost equally certain that the species has not yet gotten a foothold on any American trees. —E. A. BISCHOFF.

IDENTITY OF PEZOMACHUS AND HEMITELES.—It has long been the opinion of experienced entomologists that *Pezomachus* is but the wingless form of *Hemiteles*. This generic identity, although pointed out by Snellen von Vollenhoven, has been neglected in recent lists of Messrs. Cresson and Howard, who admit the two forms as distinct genera. The

following observation completes the proof attempted by Walsh. In 1873 I bred from a cocoon of spider eggs upwards of a dozen specimens of a dark-colored species. Part of these were wingless with the thorax as in *Pezomachus*, others were perfectly winged and the thorax was fully developed as in *Hemiteles*, with which genus the venation agreed; but there were also a number of intermediate forms with minute wing-pads, or with no signs of wings, yet with the thorax perfect, showing the transition between the two genera to occur in this one species.—WM. HAMPTON PATTON, Hartford, Conn.

THE VALUE OF LOCAL LISTS.—The "List of insects taken in the Alpine region of Mt. Washington by Mrs. Slosson in ENTOMOLOGICAL NEWS for January, which includes so many species not before found at so high an altitude is of a good deal of value from a zoo-geographical point of view. A number of specialists are under many obligations to Mrs. Slosson for her assiduous and unselfish labors. Indeed, in the great dearth of good collectors, it is fortunate for the science that there is some one who is willing to spend the time to collect in all orders. The great need at present is the publication of full local lists based on specimens named by experts. As one who has greatly profited by the large collections made in the South as well as in White Mountain region by the author of this list, the writer bears testimony to the value of such labors. It is to be hoped that the example thus set will be followed by others in the Western and Pacific States.—A. S. PACKARD.

THE importance of carefully printing the date and volume of a journal on the pages of papers extracted therefrom has again been illustrated by a recent occurrence. In the NEWS for March, p. 81, in noticing Dr. Goding's Catalogue of the Membracidæ, we were obliged to mark both the volume and the date with an interrogation point (?). This has of course attracted Dr. Goding's attention, and he writes to say that every copy of this paper "sent to me has a cover on which is plainly printed 'Vol. iii,' and at the bottom '1894.' Possibly copies were sent out which had no covers. The Catalogue complete was received by me, Jan. 18, 1894, and doubtless was shipped a day or two earlier." Dr. Goding's conjecture is correct, and the copy received by the American Entomological Society had no cover when received, while special care had been taken to examine this copy to find these indications, but in vain. The journal in question is the Bulletin of the Illinois State Laboratory of Natural History.

SPIDER MIMICRY.—In the middle of October, 1893, I was busily engaged on the banks of the Lyell fork of the Tuolumne River, in the High Sierras of California. My attention was attracted to what I supposed was a clear-winged insect that had landed by some mistake in the river, and was dragging its abdomen along in the water, while the fluttering wings struck the surface of the water every time they came down, and seemed to evince the greatest eagerness to reach the bank I was standing on, I

became highly interested to know and see how it would save itself from death by drowning, when suddenly it stopped, and to my great surprise it was a fawn-colored spider two-thirds of an inch long from the fore to the hind legs. To accomplish this description the abdomen and the hind legs remained on the water, while the anterior legs were raised up and down with rapidity, while at the same time water enough adhered to them to cause that clear-wing appearance that insects have that live near water, and it would push or walk along on the water with its hind legs. To be sure I was not mistaken I looked around and saw several of them going through the same mimicry, doubtless to attract such insects as it preys on. Being without tubes or alcohol I did not take any to have them identified. —JOHN B. LEMBERT.

HAVING noted the various articles on "Ventursome Insects," I thought I would add my experience in that line. When I lived and collected in the neighborhood of Dayton, O., I used to catch numbers of *Apatura celtis* every season. There was one place especially that I used to go to for that species. It was along an old rail fence on the bank of a creek. The corners of the fence were filled with a regular hedge of Celtis bushes and trees for a good many hundred yards. I found the insects on the fence or lower leaves of the Celtis, or on the tree trunks. They were darting about from point to point, often returning to the same point to rest, time and again, but seldom resting for more than a few moments at a time. I would walk along slowly the length of the hedge, and then back over the same ground; each time taking about as many as I did the first time. I have often taken from twenty to fifty in two or three hours. I have had them to light at different times pretty much all over me, and have caught them in my cynide bottle while resting on me, or with my net. Have had the same insect to dart away and return several times and light on my person, while I was making efforts to catch it. Like the Hesperidæ, it takes a quick eye to follow them as they dart about, and unless one knows what he is looking for and is used to them, he will not see many. I remember once taking a prominent entomologist of Michigan out to hunt for them. He had never taken *celtis* 'till that day. We went in a buggy. I let him out at one end of the fence and told him I would drive around and meet him at the other end. I noticed he was walking along very fast, and did not seem to be taking anything. When he came up to me I noticed he had a very disgusted look on his face. I had told him he would find them in *plenty*, and he had not seen *one*. I went back with him and showed him where to look. His contenance soon changed, and he had all he wanted to attend to.

Debis portlandia was very rare around Dayton. The first specimen I ever saw was on the trunk of a tree in a thick woods. From its actions I thought it was an *A. celtis*, until after I had captured it. It darted about very rapidly and lit once or twice on me, and then back on the tree trunk before I captured it.—G. R. PILATE, Griffin, Ga.

P. S.—Any person studying the typical Catocalas will find perfect

examples of *dulciola* Grote, in the collection of Mr. F. A. Eddy, of Bangor, Me. He purchased my entire collection. I never saw any variation in all examples taken, and they could not be placed as a variety of any species that I had ever seen.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be **limited to twenty-five** for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III, Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

AMERICAN NATURALIST. Philadelphia, February, 1894.—The classification of the Arthropoda, J. S. Kingsley.

COMPTE RENDU. SOCIETE DE BIOLOGIE. Paris, Jan. 27, 1894.—On the role of certain Coleoptera in the dissemination of certain cases of anthrax, F. Heim.

THE ANNALS AND MAGAZINE OF NATURAL HISTORY. London, February, 1894.—Descriptions of some new species of Heterocera from Central America, H. Druce.

SCIENCE. New York, Jan. 26, 1894.—Red ants, W. A. Stearns. A rope of insects, J. B. Smith. Fungi and insects, J. F. James.—February 2d. The enemies of Lepidopterous pupæ enclosed in bark-formed cocoons, E. B. Poulton. An explanation of the rope of maggots, S. W. Williston.

KNOWLEDGE. London, Feb. 1, 1894.—Stinging insects, E. A. Butler, figs.

ENTOMOLOGISKE MEDDELELSER, iv, 4. Copenhagen, 1893.—Larvæ Coleopterorum Musæi Hauniensis, F. Meinert. Organs and characters in different orders of Arachnids, H. J. Hansen, 2 pls.

ZOOLOGISCHER ANZEIGER. Leipsic, Feb. 5, 1894.—Contributions to the knowledge of the antennal sense-organs of insects, C. M. Child.

IL NATURALISTA SICILIANO. Palermo, December, 1893.—Catalcgue of the Coleoptera of Sicily (cont.), E. Ragusa.

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INSECT LIFE, vi, 3. Washington, February, 1894.—The insects occurring in the foreign exhibits of the World's Columbian exposition, C. V. Riley. The Hymenopterous parasites of the California Red Scale, L. O. Howard, figs. The insect collections of the Columbian exposition, F. H. Chittenden. The Apiarian exhibit at the Columbian exposition, F. Benton. The San José scale at Charlottesville, Va., E. A. Schwarz. The San José scale in Virginia, D. W. Coquillett. Pyralidina of the Death Valley expedition, Eds. Descriptions of Pyralidæ from the Death Valley, C. H. Fernald. Entomological memoranda for 1893, M. E. Murtfeldt. A new spider parasite, W. H. Ashmead. Notes on Scolytidæ and their food-plants, W. F. H. Blandford. Notes, etc.

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VERHANDLUNGEN DER K. K. ZOOL.-BOT. GESELLSCHAFT IN WIEN, xliii, 3, September, 1893.—On the anatomy of *Bdella arenaria* Kramer, Dr. L. Karpelles, 2 pls.—4, December, 1893.—On the knowledge of the anatomy and histology of *Scutigera coleoptrata*, Dr. T. Adensamer, 1 pl. Preliminary monograph of the *Muscaria schizometopa* (excl. Anthomyidæ), Dr. F. Brauer and J. E. v. Bergenstamm. Remarks and additions to Prof. G. Strobl's 'Die Anthomyinen Steiermarks,' E. Pokorny.

PROCEEDINGS OF THE U. S. NATIONAL MUSEUM, xvi, No. 968. Washington, 1893.—Notes on Myriapoda from Loanda, Africa, collected by Mr. Heli Chatelaine, including a description of a new genus and species, O. F. Cook.

EIGHTH REPORT on the Injurious and other Insects of the State of New York for the year 1891. By J. A. Lintner, Ph.D., State entomologist. Albany, 1893 (from the Forty-fifth Report on the New York State Museum, pp. 105-321), 53 figs. and 2 pls.

DEUTSCHE ENTOMOLOGISCHE ZEITSCHRIFT. 1894, heft 1. Berlin, January, 1894.—Remarks on Herr C. Verhoeff's researches on the abdominal segments and the copulatory organs of male Coleoptera, O. Schwarz, J. Weise.

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THE ENTOMOLOGIST. London, March, 1894.—The New Entomology, W. E. Sharp. How moth grease spreads, H. G. Knaggs, M.D. Remarks on certain genera of Coccidæ, W. M. Maskell. The genus *Philometra* Grote, A. G. Butler, Ph.D.

THE ENTOMOLOGISTS' MONTHLY MAGAZINE. London, March, 1894. —*Thermobia furnorum* Rovelli, a heat-loving Thysanuran, in London bakehouses, R. McLachlan. Wing expansion in a butterfly delayed by low temperature, T. A. Chapman, M.D. *Musca* (*Calliphora*) *vomitoria* in New Zealand, W. W. Smith. What are the specific limits of *Aspidiotus destructor* Sign., T. D. A. Cockerell. Grease: do male moths require more energy than females?, H. G. Knaggs, M. D. Supplement to annotated list of British Tachinidæ, R. H. Meade.

NEW SPECIES OF NORTH AMERICAN INSECTS DESCRIBED IN THE PRECEDING LITERATURE.

COLEOPTERA.

Cicindela batesi W. Horn, Deut. Ent. Zeit. 1894, p. 111, Mex.

HYMENOPTERA.

Chalcididæ: *Aspidiotiphagus* Howard, Ins. Life, vi, p. 230, for *Coccophagus citrinus* Craw., fig. Five n. spp. different genera, l. c. pp. 231–236, figs. Signophorinæ, n. subfam. p. 234.

Zaglyptus kincaidii Ashmead, Ins. Life, vi, p. 260, Wash.

LEPIDOPTERA.

Sphingidæ, Lithosiidæ, Saturniidæ, Lasiocampidæ: n. spp. Mex., Cent.-Am., Druce, Ann. Mag. N. H. (6), xiii, pp. 168–182.

Pyralidæ: n. spp. Calif., Fernald, Ins. Life, vi, pp. 255–257.

SCORPIONES.

Oncocentrus Thorell, Bull. Soc. Ent. Ital. xxv, p. 374, n. gen. for *Centrurus phaiodactylus* Wood.

The Entomological Section

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

PROCEEDINGS OF MEETINGS.

The following papers were read and accepted by the Committee for publication in ENTOMOLOGICAL NEWS:

DESCRIPTION OF A NEW CHRYSIS.

By T. D. A. COCKERELL.

Chrysis mesillæ n. sp.—Face green, with more or less cupreous reflections, occipital region purple-blue. Prothorax bright green; mesothorax coppery, with blue sutures, postscutellum purple, tegulæ greenish-blue, with violet reflections. Abdomen emerald-green, with a strong coppery lustre, lower margins of segments violet. Basal joint of antennæ shining green. Femora blue-green, with ochreous tips, tibiæ similarly colored with ochreous tips and bases, tarsi ochreous, the terminal joints fuscous. Wings hyaline, with distinct, dark brown nervures. Face more or less covered with short white hairs; head and thorax strongly and regularly punctate; prothorax with a median blue line, but no distinct grooves. Punctures on abdomen somewhat closer together, and hardly as large, as those on thorax, those on the dorsum of the third segment being especially fine and close, in contrast with the thoracic punctures. Pits distinct, about twelve in number, bordered above by purple; end of abdomen strongly bidentate. No median keel on any of the abdominal segments. Length about 6 mm. Type in Coll. Amer. Ent. Soc.

Hab.—Las Cruces, New Mex., July 12, 1893. Two specimens. Apparently closely allied to, but distinct from, *C. aurichalcea* Provancher. The name *mesillæ* is derived from the Mesilla Valley, in which Las Cruces is situated.

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TWO INTERESTING NEW DIPTERA FROM WASHINGTON.

By D. W. COQUILLETT, Washington, D. C.

Criorhina (Cynorhina) johnsoni n. sp. ♀.—Head opaque black, lower third of front and the entire face yellow, cheeks narrowly yellow next the eyes; proboscis not longer than height of head; antennæ yellow, the third joint and arista brownish. Thorax shining metallic bronze, its pile short, abundant, yellow; humeri yellow, pleura black, its pile yellow. Scutellum translucent pale yellow, its pile long, abundant yellow. Abdomen shining metallic pale bluish, its pile short, sparse, depressed, yellow, that on hind end of the second segment broadly extending forward in middle of dor-

sum, and a cross-band on the third segment behind its middle, black. Legs yellow, apices of femora brown. Wings yellowish hyaline. Length 12 mm.

Washington. Received from Prof. O. B. Johnson, after whom the species is named. Differs from all the previously described species by its translucent, yellow scutellum. The head resembles Figure 7, Plate IX, of Williston's "Synopsis of the North American Syrphidæ," but the facial tubercle is larger, and the underside of the head is more nearly horizontal; the venation is similar to figure 3 of the same plate, except that the third vein is straighter and its last section longer. The thorax and scutellum are destitute of long, stout bristles.

Ceroplatus fasciola n. sp. ♀.—Head, including the greatly flattened antennæ and large palpi, dark brown, the retracted proboscis, base of third antennal joint, and a small spot beneath each antenna, yellow. Thorax shining brown, a medio-dorsal vitta on the posterior half, and the lateral margins, yellow; pleura yellow, a large spot above the middle coxæ and small one above the hind coxæ, dark brown. Scutellum yellow, its base brown; center of metanotum dark brown. Abdomen shining blackish brown, base of each segment, except the first, yellow; on the second, third and fourth segments prolonged posteriorly as an indistinct dorsal vitta; coxæ and femora yellow, bases of middle and hind femora and of hind coxæ, blackish brown, tibiæ and tarsi brownish-yellow. Wings pale yellowish, the apex between tip of first vein and of anterior branch of the fifth blackish, apex of anterior branch of fifth vein bordered with blackish, this color projecting into the fourth posterior cell near its middle; apex of auxiliary vein far beyond the origin of the third, being opposite the origin of the fourth; subcostal cross-vein before the middle of the distance between humeral cross-vein and tip of this auxiliary vein; anterior branch of third vein very oblique, ending in costa beyond apex of first vein. Knob of halteres black. Length 10 mm.

Washington. Received from Prof. O. B. Johnson. The only other described North American species (*carbonarius*) has a wholly black thorax, and a black abdomen margined with white.

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STUDIES AMONG THE FOSSORIAL HYMENOPTERA.—II.

Synopsis of the N. Am. species of the genus Didineis Wesmael.

By WILLIAM J. FOX.

DIDINEIS Wesm.

Didineis Wesm., Revue Critique, p. 96, 1851.
Alyson Cresson, Synopsis, p. 117, 1887.

This genus resembles *Alyson* in many respects, but can be at

once distinguished by the submedian cell receiving the basal vein much before its apex, while in *Alyson* this vein is interstitial.

FIG. 1.—Fore wing of *Didineis* Wesm.

FEMALES.

Head and thorax black; abdomen red; spot on clypeus and scape beneath yellow . . . . . **texana.**
Head, thorax and abdomen reddish brown; clypeus and scape of the same color . . . . . **peculiaris.**

MALES.

Antennæ long and slender, the joints not at all nodose beneath. **texana.**
Antennæ stout, the joints of flagellum more or less nodose.
Black, first two segments of abdomen red . . . . . **nodosa.**
Entirely reddish brown, the apical segments of abdomen fuscous. **peculiaris.**

1. **Didineis texana** Cress.

Alyson texanus Cr., Tr. Am. Ent. Soc. iv, p. 226, ♂, 1873.
Didineis texana Handl., Sitzb. Akad. Wissensch. Wien, Math-naturw. Classe, xcvi, p. 267, ♀♂.

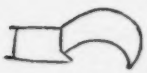

FIG. 2.—Last 2 joints of male antenna.

Virginia, District of Columbia, Texas. Mr. Guignard has sent me an unusually large specimen, taken at Ottawa, Canada, by Mr. W. H. Harrington.

2. **Didineis nodosa** n. sp.

♂.—Anterior margin of clypeus subtruncate; front and vertex with very fine and close punctures; antennæ stout, the first joint of the flagellum longer than the second and much thickened beneath at the apex, joints 2–5 also thickened in this manner, the tenth joint produced into an acute spine beneath at apex, the last joint very large and curved; metathorax with coarse striations, those within the elongate, semi-elliptic enclosure placed obliquely on each side of a longitudinal, central, raised line; fore legs much flattened and dilated, the lower margin of fore femora subangular medially; abdomen finely and closely punctured. First two segments of abdomen red; tibiæ and tarsi yellow-testaceous; scape beneath, clypeus, except in middle, inner orbits to about the middle of front yellow; last joint of flagellum reddish testaceous; wings subhyaline, iridescent, without fuscous markings. Length 6 mm.

State of Washington.

3. **Didineis peculiaris** n. sp.

♀.—Head rather well developed behind the eyes; front and vertex very finely and closely punctured; clypeus tridentate; first joint of the flagellum somewhat shorter than the following two joints united; dorsulum finely and closely punctured; metathorax rather finely rugose; abdomen finely and closely punctured; entirely reddish brown, the thorax beneath and apical joints of antennæ blackish; clypeus and abdomen apically, sparsely clothed with white pubescence; wings subhyaline, in the region of the marginal, second submarginal and third discoidal cells there is a fuscous cloud. Length 8 mm.

♂.—Antennæ stout, joints 1–5 of flagellum thickened or nodose at apex beneath, but not so strongly so as in *nodosa*, the last joint very large, curved and subtruncate at apex, the preceding joint spinose at apex beneath; anterior femora with the lower margin rounded beneath; colored like the ♀, except that the apical segments of the abdomen are blackish, and the inner orbits, scape beneath and anterior margin of clypeus, yellow; wings with a fuscous cloud. Length 6–7 mm.

FIG. 3.—Last two joints of male antenna.

Montana. The coloration will at once distinguish it from the other species.

OBITUARY.

HERMAN GLEISSNER, Rector of the 63 Parish School, Berlin.

FRANZ VON MICKLITZ, K. K. FORSTMEISTER in Vienna.

FRANCIS POLKINGHORNE PASCOE on the 20th of June at Brighton, England. He was born in Penzance, Sept. 1, 1813, was known through his interest in Coleoptera.

ENTOMOLOGICAL NEWS for March was mailed Feb. 28, 1894.